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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,885	04/18/2001	Jun Liu	1941-76	1062

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EXAMINER

CHANG, VICTOR S

ART UNIT	PAPER NUMBER
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1771

DATE MAILED: 04/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS7

Office Action Summary	Application No.		Applicant(s)	
	09/837,885		LIU ET AL.	
	Examiner		Art Unit	
	Victor S Chang		1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11,53-55,66-70 and 75-98 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-11,53-55,66-70 and 75-98 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 12-23 in Second Preliminary Amendment, dated 4/3/02, have been renumbered 75-86, respectively.

Also, misnumbered claims 24-35 in Third Preliminary Amendment, dated 5/28/02, have been renumbered 87-98, respectively.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-11, 53-55, 66-70 and 75-98 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, lines 2-3 and throughout, the phrases "relative stability" and "absolute stability" are vague and indefinite, i.e., it is not clear as to the scope of these limitations.

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In claim 4, line 2, the term "disordered" is vague and indefinite, i.e., it is not clear as to the scope of this limitation. The Examiner suggests that the disordered porosity limitation in claim 53 should be incorporated in the first claim which recites "disordered" limitation, i.e., claim 4.

Claims 53 and 54 are dependent on cancelled claim 32.

Claim 55 is dependent on cancelled claim 12.

In claims 53-55 and throughout, the term "stable" is vague and indefinite, i.e., it is not clear what is encompassed by this limitation.

Claims 75-77 are de facto duplicates of claims 53-55, respectively.

Claims 78-82 are exact duplicates of claims 66-70, respectively.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000.

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Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1, 2, 55, 66, 77 and 78 are rejected under 35 U.S.C. 102(e) as being anticipated by Brinker et al. (US 5858457).

Brinker's invention is directed to a family of supported silica films with pore size in the approximate range 0.8-20 nm exhibiting highly ordered microstructures and porosity derived from an ordered micellar or liquid-crystalline organic-inorganic precursor structure that forms during film deposition. Optically transparent, 100-500-nm (i.e., 0.1-0.5 μ m) thick films exhibiting a unique range of microstructures and uni-modal pore sizes are formed in seconds in a continuous coating operation (Abstract). In Example 5, the film dielectric constant is determined to be 2.37 (column 9, line 29). Although Brinker is silent about the relative stability and absolute stability of dielectric constant in a humid atmosphere, it is believed that the aforementioned dielectric properties are inherent to Brinker's mesoporous silica films, since the silica films are essentially made by the same surfactant templated process as the instant claimed invention (column 5, lines 50-54).

Claims lack novelty.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-11, 53-55, 67-70, 75-98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brinker et al. (US 5858457).

The teachings of Brinker are again relied upon as set forth above.

For claims 1, 2, 55, 66, 77 and 78, if, for the purpose of anticipation, the reference is believed to teach such a number of different embodiments that the specific parameters of each of the claims cannot be considered to be in possession of the skilled artisan, the Examiner believes that, alternatively, each of the claimed embodiments is at most a minor modification to one of ordinary skill.

For claims 3, 5-8, 67 and 79, although Brinker is silent about the standard deviation of the silica film, the Examiner notes that Brinker does teach that spin-coating or other standard techniques may also be used (column 10, lines 19-21), and it is old and well known that spin-coating generally produces thin coating with extremely high thickness uniformity. As such, it would have been obvious to one of ordinary skill in the art to use spin-coating method to make Brinker's silica film with small standard deviation in thickness, motivated by the desire to improve the property (e.g., dielectric constant) uniformity of the film.

For claims 4, 9-11, 53-54, 68-70, 75-76 and 80-82, Brinker shows in Fig. 8 the XRD of the film samples before and after calcination at 400°C, and teaches that the film order as judged by the intensity and FWHM of the $2\theta=2.4^\circ$ peak depends strongly on the pre-conditioning RH, with the greatest order achieved at 60% RH. As such, it is known that the order of the porosity can be modified over a wide range by modifying the

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RH during calcinations, as taught by Brinker, including the range of the disordered porosity of the instant claimed invention.

With respect to the product-by-process claims 83-98, because the method limitations have not been shown on the record to produce a patentably distinct article, as such the formed articles are rendered *prima facie* obvious. It should be pointed out that product-by-process claims are product claims and that to be limiting in a product claim, a process limitation must be evidenced as effecting the structure or chemistry of the resultant product over the prior art. Further, the burden of proof for this showing is on Applicant after the Examiner presents an otherwise *prima facie* rejection. Note MPEP 2113 for a more detailed description.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor S Chang whose telephone number is 703-605-4296. The examiner can normally be reached on 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel H Morris can be reached on 703-308-2414. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

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VSC

April 9, 2003

DANIEL ZIRKER
PRIMARY EXAMINER
GROUP ~~1300~~

1700

Daniel Zinker